



#15/E

SEQUENCE LISTING

<110> O'Donnell, Michael

<120> DNA POLYMERASE III HOLOENZYME

<130> 19603/10214

<140> 08/828,323

<141> 1997-03-28

<160> 60

<170> PatentIn Ver. 2.0

<210> 1

<211> 28

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<213> Escherichia coli

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Leu Arg Ala Ala Tyr Leu Leu Leu Gly Asn Asp Pro
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<212> PRT

<213> Escherichia coli

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Ala Ala Tyr Leu Leu Leu Gly Asn Asp Pro Leu Leu Leu Gln Glu Ser
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Gln Asp Ala Val Arg
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<211> 14

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<213> Escherichia coli

<400> 3

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90

E

1

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<210> 4

<211> 24

<212> PRT

<213> Escherichia coli

<400> 4

Val Glu Gln Ala Val Asn Asp Ala Ala His Phe Thr Pro Phe His Trp

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Val Asp Ala Leu Leu Met Gly Lys

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<213> Escherichia coli

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<211> 1032

<212> DNA

<213> Escherichia coli

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 gtaactg 127

<210> 8
 <211> 104
 <212> DNA
 <213> Escherichia coli

<400> 8
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<210> 9
 <211> 343
 <212> PRT
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 Glu Ser Gln Asp Ala Val Arg Gln Val Ala Ala Ala Gln Gly Phe Glu
 35 40 45
 Glu His His Thr Phe Ser Ile Asp Pro Asn Thr Asp Trp Asn Ala Ile
 50 55 60
 Phe Ser Leu Cys Gln Ala Met Ser Leu Phe Ala Ser Arg Gln Thr Leu
 65 70 75 80
 Leu Leu Leu Leu Pro Glu Asn Gly Pro Asn Ala Ala Ile Asn Glu Gln
 85 90 95
 Leu Leu Thr Leu Thr Gly Leu Leu His Asp Asp Leu Leu Leu Ile Val
 100 105 110
 Arg Gly Asn Lys Leu Ser Lys Ala Gln Glu Asn Ala Ala Trp Phe Thr

92

E

115		120		125
Ala Leu Ala Asn Arg Ser Val Gln Val Thr Cys Gln Thr Pro Glu Gln				
130		135		140
Ala Gln Leu Pro Arg Trp Val Ala Ala Arg Ala Lys Gln Leu Asn Leu				
145		150		155
Glu Leu Asp Asp Ala Ala Asn Gln Val Leu Cys Tyr Cys Tyr Glu Gly				
	165		170	175
Asn Leu Leu Asn Leu Ala Gln Ala Leu Glu Arg Leu Ser Leu Leu Trp				
	180		185	190
Pro Asp Gly Lys Leu Thr Leu Pro Arg Val Glu Gln Ala Val Asn Asp				
	195		200	205
Ala Ala His Phe Thr Pro Phe His Trp Val Asp Ala Leu Leu Met Gly				
	210		215	220
Lys Ser Lys Arg Ala Leu His Ile Leu Gln Gln Leu Arg Leu Gly Gly				
	225		230	235
Ser Glu Pro Val Ile Leu Leu Arg Thr Leu Gln Arg Glu Leu Leu Leu				
	245		250	255
Leu Val Asn Leu Lys Arg Gln Ser Ala His Thr Pro Leu Arg Ala Leu				
	260		265	270
Phe Asp Lys His Arg Val Trp Gln Asn Arg Arg Gly Met Met Gly Glu				
	275		280	285
Ala Leu Asn Arg Leu Ser Gln Thr Gln Leu Arg Gln Ala Val Gln Leu				
	290		295	300
Leu Thr Arg Thr Glu Leu Thr Leu Lys Gln Asp Tyr Gly Gln Ser Val				
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Trp Ala Glu Leu Glu Gly Leu Ser Leu Leu Leu Cys His Lys Pro Leu				
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Ala Asp Val Phe Ile Asp Gly				
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<210> 10
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 <212> PRT

93

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<213> Escherichia coli

<400> 10

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Pro Gly Met Gly Asp Asp Ala Leu Ile Tyr Ala Leu Ser Arg Tyr Leu
35 40 45

Leu Cys Gln Gln Pro Gln Gly His Lys Ser Cys Gly His Cys Arg Gly
50 55 60

Cys Gln Leu Met Gln Ala Gly Thr His Pro Asp Tyr Tyr Thr Leu Ala
65 70 75 80

Pro Glu Lys Gly Lys Asn Thr Leu Gly Val Asp Ala Val Arg Glu Val
85 90 95

Thr Glu Lys Leu Asn Glu His Ala Arg Leu Gly Gly Ala Lys Val Val
100 105 110

Trp Val Thr Asp Ala Ala Leu Leu Thr Asp Ala Ala Ala Asn Ala Leu
115 120 125

Leu Lys Thr Leu Glu Glu Pro Pro Ala Glu Thr Trp Phe Phe Leu Ala
130 135 140

Thr Arg Glu Pro Glu Arg Leu Leu Ala Thr Leu Arg Ser Arg Cys Arg
145 150 155 160

Leu His Tyr Leu Ala Pro Pro Pro Glu Gln Tyr Ala Val Thr Trp Leu
165 170 175

Ser Arg Glu Val Thr Met Ser Gln Asp Ala Leu Leu Ala Ala Leu Arg
180 185 190

Leu Ser Ala Gly Ser Pro Gly Ala Ala Leu Ala Leu Phe Gln Gly Asp
195 200 205

Asn Trp Gln Ala Arg Glu Thr Leu Cys Gln Ala Leu Ala Tyr Ser Val
210 215 220

Pro Ser Gly Asp Trp Tyr Ser Leu Leu Ala Ala Leu Asn His Glu Gln
225 230 235 240

Ala Pro Ala Arg Leu His Trp Leu Ala Thr Leu Leu Met Asp Ala Leu
 245 250 255

Lys Arg His His Gly Ala Ala Gln Val Thr Asn Val Asp Val Pro Gly
 260 265 270

Leu Val Ala Glu Leu Ala Asn His Leu Ser Pro Ser Arg Leu Gln Ala
 275 280 285

Ile Leu Gly Asp Val Cys His Ile Arg Glu Gln Leu Met Ser Val Thr
 290 295 300

Gly Ile Asn Arg Glu Leu Leu Ile Thr Asp Leu Leu Leu Arg Ile Glu
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His Tyr Leu Gln Pro Gly Val Val Leu Pro Val Pro His Leu
 325 330

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 <212> DNA
 <213> Escherichia coli

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<210> 12
 <211> 54
 <212> DNA
 <213> Escherichia coli

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<210> 13
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 aatgagcacg cacgcttagg tgggtgcgaaa gtcgtttggg taaccgatgc tgccttacta 360
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gcactaccgt gaccactgg gtgaaggagt tggacgc 157

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<210> 15
 <211> 143
 <212> DNA
 <213> Escherichia coli

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<210> 16
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 <213> Escherichia coli

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<400> 16
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<210> 17
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 <212> PRT
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<400> 17
Glu Val Thr Glu Lys Leu Asn Glu His Ala Arg

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<210> 18

<211> 20

<212> PRT

<213> Escherichia coli

<400> 18

Val Val Trp Val Thr Asp Ala Ala Leu Leu Thr Asp Ala Ala Ala Asn
1 5 10 15

Ala Leu Leu Lys
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<210> 19

<211> 25

<212> PRT

<213> Escherichia coli

<400> 19

Thr Leu Glu Glu Pro Pro Ala Glu Thr Trp Phe Phe Leu Ala Thr Arg
1 5 10 15

Glu Pro Glu Arg Leu Leu Ala Thr Leu
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<210> 20

<211> 18

<212> PRT

<213> Escherichia coli

<400> 20

Leu His Tyr Leu Ala Pro Pro Pro Glu Gln Tyr Ala Val Thr Trp Leu
1 5 10 15

Ser Arg

<210> 21

<211> 21

<212> PRT

<213> Escherichia coli

<400> 21

Leu Ser Ala Gly Ser Pro Gly Ala Ala Leu Ala Leu Phe Gln Gly Asp
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Asn Trp Gln Ala Arg
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<210> 22
<211> 5
<212> PRT
<213> Escherichia coli

<400> 22
Leu Gly Gly Ala Lys
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<210> 23
<211> 58
<212> PRT
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<400> 23
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Cys Gly Gly Cys Thr Thr Gly Ala Ala Ala Cys Thr Thr Gly Gly Thr
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Thr Thr Thr Thr Thr Cys Thr Gly Gly Cys Thr Ala Cys Thr Cys Gly
35 40 45

Thr Gly Ala Ala Cys Cys Gly Gly Ala Ala
50 55

<210> 24
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<212> PRT
<213> Escherichia coli

<400> 24
Gly Cys Thr Gly Gly Thr Thr Cys Thr Cys Cys Gly Gly Gly Thr Gly
1 5 10 15

Cys Thr Gly Cys Thr Cys Thr Gly Gly Cys Thr Cys Thr Gly Thr Thr
20 25 30

Thr Cys Ala Gly Gly Gly Thr Gly Ala Thr Ala Ala Cys Thr Gly Gly
 35 40 45

Cys Ala Gly Gly Cys Thr
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<210> 25
 <211> 33
 <212> PRT
 <213> Escherichia coli

<400> 25
 Gly Gly Thr Gly Ala Ala Gly Gly Ala Gly Thr Thr Gly Gly Ala Cys
 1 5 10 15
 Ala Thr Ala Thr Gly Ala Gly Ala Thr Gly Gly Thr Ala Thr Cys Cys
 20 25 30

Ala

<210> 26
 <211> 40
 <212> PRT
 <213> Escherichia coli

<400> 26
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 1 5 10 15
 Asn Val Asp Leu Ala Ala Ala Gly Val Ala Phe Lys Glu Arg Tyr Asn
 20 25 30

Met Pro Val Ile Ala Glu Ala Val
 35 40

<210> 27
 <211> 57
 <212> DNA
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<210> 28

<211> 57
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<210> 29
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<212> DNA
<213> Escherichia coli

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gaacgtgaac agcctgaaca tttgcgcagc tggtttcgcg agcggcttat tgcccaccgt 180
ttggcttcgg tcaatctgtc acgtttacct tacgagccca aacttaaa 228

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<211> 172
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<213> Escherichia coli

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tttttacaga cgataacctt gtctaattgc tgagtcgagg atcatcaatt ccggcttgcc 120
atcctggctc actcttagta acttttgccc gogaatgatg aggagattaa ga 172

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<211> 107
<212> DNA
<213> Escherichia coli

<400> 31
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aaaccgcact cataatttgc agtcattttg aaaaggaagt cattatg 107

<210> 32
<211> 76
<212> PRT
<213> Escherichia coli

<400> 32
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1 5 10 15
Asn Val Asp Leu Ala Ala Ala Gly Val Ala Phe Lys Glu Arg Tyr Asn
20 25 30

Met Pro Val Ile Ala Glu Ala Val Glu Arg Glu Gln Pro Glu His Leu
35 40 45

Arg Ser Trp Phe Arg Glu Arg Leu Ile Ala His Arg Leu Ala Ser Val
50 55 60

Asn Leu Ser Arg Leu Pro Tyr Glu Pro Lys Leu Lys
65 70 75

<210> 33

<211> 40

<212> PRT

<213> Escherichia coli

<400> 33

Met Leu Lys Asn Leu Ala Lys Leu Asp Gln Thr Glu Met Asp Lys Val
1 5 10 15

Asn Val Asp Leu Ala Ala Ala Gly Val Ala Phe Lys Glu Ala Tyr Asn
20 25 30

Met Pro Val Ile Ala Glu Ala Val
35 40

<210> 34

<211> 57

<212> DNA

<213> Escherichia coli

<400> 34

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<210> 35

<211> 57

<212> DNA

<213> Escherichia coli

<400> 35

ctggctgctg ctggtgttgc ttttaaagaa cgttataaca tgccggttat tgctgaa 57

<210> 36

<211> 33

<212> DNA

<213> Escherichia coli

<400> 36

atgatgagga gattacatat gctgaagaat ctg

33

<210> 37

<211> 51

<212> DNA

<213> Escherichia coli

<400> 37

gaggaattcg gcttttttgc cgaattcctc ggcccctagg agatctcagc t

51

<210> 38

<211> 137

<212> PRT

<213> Escherichia coli

<400> 38

Met Thr Ser Arg Arg Asp Trp Gln Leu Gln Gln Leu Gly Ile Thr Gln
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Trp Ser Leu Arg Arg Pro Gly Ala Leu Gln Gly Glu Ile Ala Ile Ala
20 25 30

Ile Pro Ala His Val Arg Leu Val Met Val Ala Asn Asp Leu Pro Ala
35 40 45

Leu Thr Asp Pro Leu Val Ser Asp Val Leu Arg Ala Leu Thr Val Ser
50 55 60

Pro Asp Gln Val Leu Gln Leu Thr Pro Glu Lys Ile Ala Met Leu Pro
65 70 75 80

Gln Gly Ser His Cys Asn Ser Trp Arg Leu Gly Thr Asp Glu Pro Leu
85 90 95

Ser Leu Glu Gly Ala Gln Val Ala Ser Pro Ala Leu Thr Asp Leu Arg
100 105 110

Ala Asn Pro Thr Ala Arg Ala Ala Leu Trp Gln Gln Ile Cys Thr Tyr
115 120 125

Glu His Asp Phe Phe Pro Gly Asn Asp
130 135

<210> 39

<211> 411

<212> DNA

<213> Escherichia coli

<400> 39

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atggtggcaa acgatcttcc cgccctgact gatccttttag tgagcagatgt tctgcgcgca 180
ttaaccgtca gccccgacca ggtgctgcaa ctgacgccag aaaaaatcgc gatgctgccg 240
caaggcagtc actgcaacag ttggcggttg ggtactgacg aaccgctatc actggaaggc 300
gctcaggtgg catcaccggc gtcaccgat ttacgggcaa acccaacggc acgcgccgcg 360
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<211> 77

<212> DNA

<213> Escherichia coli

<400> 40

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<210> 41

<211> 103

<212> DNA

<213> Escherichia coli

<400> 41

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<210> 42

<211> 27

<212> DNA

<213> Escherichia coli

<400> 42

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<210> 43

<211> 30

<212> DNA

<213> Escherichia coli

<400> 43

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<210> 44

<211> 17

<212> PRT

<213> Escherichia coli

<400> 44

Leu Gly Thr Asp Glu Pro Leu Ser Leu Glu Glu Ala Gln Val Ala Ser
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Pro

<210> 45

<211> 17

<212> PRT

<213> Escherichia coli

<400> 45

Ala Ala Leu Trp Gln Gln Ile Cys Thr Tyr Glu His Asp Phe Phe Pro
1 5 10 15

Ala

<210> 46

<211> 32

<212> DNA

<213> Escherichia coli

<400> 46

caacaggagc gattccatat gacatcccga cg 32

<210> 47

<211> 31

<212> DNA

<213> Escherichia coli

<400> 47

gattcggatc cctgcaggcc ggtgaatgag t 31

<210> 48

<211> 30

<212> DNA

<213> Escherichia coli

<400> 48

ccccacatat gaaaaacgcg acgttctacc 30

<210> 49

<211> 28
<212> DNA
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<400> 49
accgcgatcc aaactgccgg tgacattc

28

<210> 50
<211> 441
<212> DNA
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gttgagcacc tgggtgtgtga aattgccgca gaacggttggc gcagcggtaa gcgcgtgctc 120
atcgccctgtg aagatgaaaa gcaggcttac gccctggatg aagccctgtg ggcgcgcccg 180
gcagaaagct ttgttccgca taatttagcg ggagaaggac cgcgcggcgg tgtaccggtg 240
gagatcgctt ggccgcaaaa gcgtagcagc agccggcgcg atatattgat tagtctgcga 300
acaagctttg cagattttgc caccgctttt acagaagtgg tagacttcgt tcctcatgaa 360
gattctctga aacaactggc gcgcgaacgc tataaagcct accgcgtggc tggtttcaac 420
ctgaatacgg caacttgga a 441

<210> 51
<211> 175
<212> DNA
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<400> 51
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ggcgctgcgg tgtatactg atgcgtattt aaatccacca caagaagccc cattt 175

<210> 52
<211> 100
<212> DNA
<213> Escherichia coli

<400> 52
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aaagccagga aagtttctgc atcatgatcc cgccgccgaa 100

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<400> 53
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Trp	Arg	Ser	Gly	Lys	Arg	Val	Leu	Ile	Ala	Cys	Glu	Asp	Glu	Lys	Gln
	35						40					45			
Ala	Tyr	Arg	Leu	Asp	Glu	Ala	Leu	Trp	Ala	Arg	Pro	Ala	Glu	Ser	Phe
	50						55				60				
Val	Pro	His	Asn	Leu	Ala	Gly	Glu	Gly	Pro	Arg	Gly	Gly	Ala	Pro	Val
	65					70				75				80	
Glu	Ile	Ala	Trp	Pro	Gln	Lys	Arg	Ser	Ser	Ser	Arg	Arg	Asp	Ile	Leu
				85					90					95	
Ile	Ser	Leu	Arg	Thr	Ser	Phe	Ala	Asp	Phe	Ala	Thr	Ala	Phe	Thr	Glu
		100						105					110		
Val	Val	Asp	Phe	Val	Pro	Tyr	Glu	Asp	Ser	Leu	Lys	Gln	Leu	Ala	Arg
		115					120					125			
Glu	Arg	Tyr	Lys	Ala	Tyr	Arg	Val	Ala	Gly	Phe	Asn	Leu	Asn	Thr	Ala
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Thr	Trp	Lys													
145															

<210> 54
 <211> 29
 <212> PRT
 <213> Escherichia coli

<400> 54
 Met Lys Asn Ala Thr Phe Tyr Leu Leu Asp Asn Asp Thr Thr Val Asp
 1 5 10 15

Gly Leu Ser Ala Val Glu Gln Leu Val Xaa Glu Ile Ala
 20 25

<210> 55
 <211> 9
 <212> PRT
 <213> Escherichia coli

106

E

<400> 55

Val Leu Ile Ala Xaa Glu Asp Glu Lys
1 5

<210> 56

<211> 21

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<213> Escherichia coli

<400> 56

Leu Asp Glu Ala Leu Trp Ala Ala Pro Ala Glu Ser Phe Val Pro His
1 5 10 15

Asn Leu Ala Gly Glu
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<210> 57

<211> 10

<212> PRT

<213> Escherichia coli

<400> 57

Gly Gly Ala Pro Val Glu Ile Ala Trp Pro
1 5 10

<210> 58

<211> 8

<212> PRT

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